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Procedia - Social and Behavioral Sciences 168 (2015) 249 – 260

Procedia
Social and Behavioral Sciences

AicE-Bs2014Berlin
(formerly AicE-Bs2014Magdeburg)
Asia Pacific International Conference on Environment-Behaviour Studies
Sirius Business Park Berlin-yard field, Berlin, 24-26 February 2014
"Public Participation: Shaping a sustainable future"

Creating Cultural Innovation: Towards a holistic approach in shaping a sustainable future

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Abstract

This paper presents a review on holistic approaches of green building assessment tools (GBAT) for sustainable development (SD) showing the trends and conceptual framework. The method of the study is through literature review which highlighted the socio-cultural inadequacy of most GBAT. The paper proposes several hypotheses. Firstly, to use a holistic universal method to assess sustainability within the community's cultural context. Secondly, the assessment criteria for sustainability from the socio-cultural viewpoint would differ from the conventional tools. Thirdly, the study proposes that the community would prefer to shape their future environment with specific preferred values in their home environment.

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Peer-review under responsibility of Centre for Environment-Behaviour Studies (cE-Bs), Faculty of Architecture, Planning & Surveying, Universiti Teknologi MARA, Malaysia.

Keywords: Sustainable future; holistic approach; socio-cultural aspect; Malay

1. Introduction

In the effort to strive for a more holistic approach for a sustainable future in the built environment, a plethora of assessment tools have been established worldwide, enlisting many evaluation criteria. These

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assessment tools have become the means for countries to shape their future to be sustainable, designed base on particular philosophical basis deemed suitable for the country, such as “Triple Bottom Line” (TBL) and “Cradle to Cradle” (C2C). As a response to their locality needs, Japan, for example, innovated their philosophical approach named as ‘Glocal Approach’ (AIJ & IBEC, 2005), for their future sustainable architecture. However another aspect of sustainability, still arguably discussed is the socio-cultural aspect. Poston et al. (2010) revealed that social and cultural aspects are part of the criteria within a holistic sustainability framework. Darus et al. (2009) highlighted the significance of the non-technical issues such as social and cultural aspects, to developing sustainable rating systems in Malaysia. Shari et al. (2008), other than pointing the difference in focus and models between developed and developing countries, revealed the lack of attention towards the non-environmental aspects in Malaysian scenario. Many studies have evaluated whether these tools covered all the dimensions of their noble philosophical basis and approach such as Triple Bottom Line, towards achieving a sustainable future. Two significant aspects of sustainability identified to be in need of further attention were the Social and Cultural.

The research aimed at fulfilling the gaps identified towards achieving sustainability holistically through creating cultural innovation as an effort toward contributing to the pool of knowledge in sustainability through a holistic approach, within the socio-cultural aspects of the Malay communities, the indigenous communities in Malaysia.

This paper aims to present the reviews, the resulted conceptual framework and the proposed hypotheses for the research. The reviews are meant as a start to critically analyse the gaps and overlaps between the frameworks and noble philosophical basis of their invention with the intention to broaden the wider scope of sustainability, for a more holistic approach. Socio-cultural aspects are very contextual (Shari, Soebarto & Williamson, 2011; Poston, Emmanuel & Thomson, 2010) shaped by the communities’ customs and traditions that determined their norms and moral etiquette, as well as their spiritual faiths or religion. Undeniably, one community’s socio-cultural values in a home environment setting would differ from another (Omar, Endut & Saruwono, 2011). Therefore, the roots and the historical contextual background from which this proposal emerged are vital in understanding the innovation creation within the discussion presented in this paper. Furthermore, shaping the environment processes had started since the early civilization (Saruwono, 2010). The findings of this research will also contribute to shaping the future design for sustainable home environment in Malaysia, within the Malay communities’ socio-cultural context in particular and towards developing flexibility for other communities’ context in general. The study focuses on the socio-cultural aspects of the Malay communities in Negeri Sembilan, a central west coastal region of Malaysia. Their communities, well known for their unique and complex matrilineal custom and ruling systems, with strong historical link to the Malay ancient kingdoms of Sriwijaya, Pagaruyung (Minangkabau) and Melaka. The Malay communities of Negeri Sembilan reflected their socio-cultural uniqueness in their traditional built form.

This paper is divided into five sections; general information about GBAT; the manner in which the literature review was initiated and undertaken; intellectual views of the development of GBAT; the proposed conceptual frameworks and hypotheses and finally the further deliberations for the future direction based on the proposed hypotheses.

2. Green building assessment tool

Green building has now become the flagship of sustainable development (SD) in this century (Ali & Al Nsairat, 2009). In the effort of tackling the global environmental problems towards a sustainable future, many comprehensive green building assessment tools (GBAT) were established globally, and Malaysia is of no exception. The assessment systems measure how well a building performs in achieving

sustainability (Shari, 2013). Table 1 enables the reader to have a brief view of the key established international GBAT available in the world.

Table 1. Key established international Green Building Tools

	Country	Tool	Initiated		Country	Tool	Initiated
1	United Kingdom	BREEAM	1990	8	France	HQE	2004
2	International	GB/SB Tool	1996	9	Portugal	Lider A	2005
3	United States of America	LEED	1998	10	Singapore	Green Mark	2005
4	Canada/USA	Green Globes	2000	11	Spain	VERDE	2005
5	Japan	CASBEE	2001	12	Germany	DGNB Certification	2009
6	Australia	Green Star	2003	13	Malaysia	GBI	2009
7	Canada	LEED Canada	2004	14	Abu Dhabi (United Arab Emirates)	Pearl Rating System	2010

(Adapted from Poston et al., 2010)

The assessment system's framework designed to achieve sustainability played the role as the 'mould' that will shape the future, which is why the 'ingredient' (the criteria and attributes) gained attention of researchers in monitoring the intended noble effort as underlines by the philosophical basis of sustainability holistically.

3. Methodology

The methodology is through critical literature review which focuses on identifying the trends and recommendations from comparative studies of the GBAT criteria and the empirical findings of the studies regarding the weightings of the criteria for developing assessment tools. The research design adopts a multi-dimensional strategy with qualitative and quantitative methods including ethnographic approach. For this paper, the gaps and issues within sustainable built environment in terms of the holistic approach were identified using qualitative method. Figure 1 present in detail the methodology within Phase 1 of a bigger study which led to this paper.

The literature resources include the academic sourcing via on-line journals and databases (Ahmad et al., 2013) and papers from seminars, talk, forums organized by International Exhibitions and Universities which contributed to preliminary literature reviews. Other aspects of the literatures were reports and papers from the non-government organizations discussions in tapping the communities' viewpoint. In order to understand a complete picture of sustainability and its relationships and association to green, a thorough search of the initial scholarly literature that frames the periphery of holistic sustainable built environment was undertaken. Although comparative studies of the criteria and the parameters' weightings used methods such as Analytical Hierarchy Process (AHP), revealed empirical finding for aspects such as criteria priorities and performance sensitivity, but these findings will not be discussed within these papers. This paper, however, limits the scope to reviewing literatures identifying gaps and issues within the Assessment Systems' frameworks and criteria.

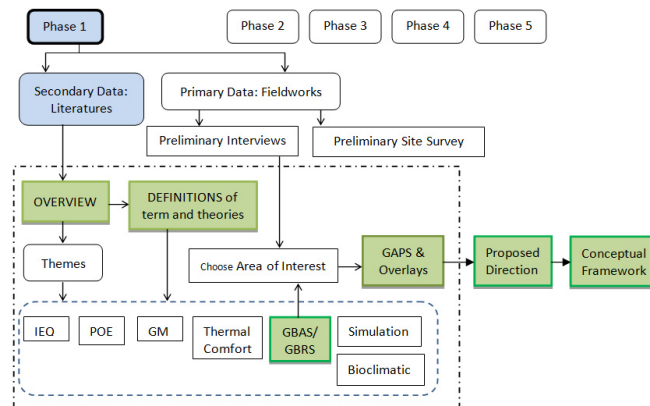


Fig.1. This paper's methodology diagram

4. Literature reviews

The discussions highlights the preliminary synthesis of the sourcing narratively, identifying the trend or gaps and overlays that brought the research direction and conceptual framework for the research proposal. Supporting the reviews is additional historical narrative in order to give contextual understanding essential to understanding the need for the innovation creation in the socio-cultural aspects.

4.1. Recommendation to adopt a holistic approach

In order to be successful in shaping the future built environment to be sustainable, adoption of a more holistic view is recommended by many researchers (Poston et al., 2010; Blaviesciunaite, 2012; Hacking & Guthrie, 2008). Even recently, a few of the novel articulations of SD have expresses their design theory and frameworks holistically. Blaviesciunaite (2012) critically stated that the currently accepted standards of green building practices, does not incorporate a holistic approach. Although Hacking and Guthrie were studying the SD-directed assessment in terms of the environmental impact, their reviews also highlighted similar discussion. Critically, the necessity of holistic perspective should be adopted, so that decision-makers are informed of the full spectrum of the impacts (Hacking & Guthrie, 2008).

4.2. The 'shift' in GBAT framework's emphasis

Upon suggesting the holistic approach and frameworks, a few ways of viewing the framework were suggested. In terms of the built environment, two ways of viewing 'holistic' were suggested. The first is through broadening the meaning of 'environment' or 'the scope of discussion to be beyond the environmental responsibility' (Hacking & Guthrie, 2008; Sebake, 2008). Second is through embracing the 'wider agenda of sustainability' (Sebake, 2008), 'wider range of issues' and 'broader coverage of sustainability' (Poston et al., 2010).

Thus, recent researches on GBAT identified the shift in the emphasis of these assessment systems globally from 'green' to 'sustainable' building (Poston et al., 2010) in ensuring that the framework is holistic and essentially achieves sustainability goal. In fact, such shift had even been termed as the next generation of sustainability. Not only that, the shift is also in the terms used for assessing the green

building from GBAT to Sustainability Assessment Methods (SAM) or Sustainability Assessment System (SAS). How would Malaysia's GBAT criteria fare if reviewed based on the holistic sustainability assessment methods?

4.3. Developing countries: the difference

Before further reviewing of GBAT, it is important to bear in mind that there are differences in focus, models and priorities between developed and developing/emergence countries (Shari et al., 2008; Shari, 2013; Ali & Al Nsairat, 2009; Hacking & Guthrie, 2008). Bourdeau et al. (1998 cited in Shari et al., 2008) and Libovich (2005 cited in Shari, 2013) both reported that the focus for developing countries should be social and economic sustainability or issues. Likewise, Hacking and Guthrie (2008) believe that 'integrated' approach is particularly relevant in developing countries. In these countries, such as Malaysia, the meaning of "environmental" goes beyond the biophysical aspects to those more closely linked to quality of life and growth. The difference depends on factors such as economic situations, level of urbanization, historic and cultural context, climate and national policies. GBAT should reflect these differences based on SD rather than on environmental impacts.

4.4. Existing GBAT in realizing the concept of sustainability for the future?

Even though such improvement in coverage and range of issues to the GBAT had been implemented, including the life-cycle, most are still failing to sufficiently cover all the dimensions of the TBL, natural and cultural approaches to sustainability. Many of the criteria within the GBAT shown in Table 1 were found to be less on the responsive and developmental impacts on social, cultural and economic issues (Poston et al., 2010). Haapio and Viitanieni (2008), Sinou and Kyvelou (2006) and Cole (2005) (cited in Poston et al., 2010) stated that there has been criticism of the dominance of environmental criteria at the expense of social and economic criteria. Figure 3 shows the seventeen criteria referred. Shari (2013) criticised that, very few of the assessment systems in developed countries addressed purely non-environmental issues. In fact, even if they did address, they are associated with underlying environmental concerns.

Surprisingly, GBI has been identified to cover only six of Poston et al.'s SAM framework, excluding the Social and Cultural aspects. In fact, those GBATs that covered TBL were found to be limited in applying the Social and Economic aspects. DGNB German had pioneered the move towards integrating Social and Cultural criteria together (Poston et al., 2010). Among additional requirements for sustainable building recommended by Shari and Soebarto (2012), is "the preservation of cultural values and heritage" (if applicable). In fact, in according to Spokes (2005), for public planning for sustainability to be more effective, integrated frameworks methodology should include cultural evaluation parallel among those being developed for social, environmental and economic impact assessment. In addition to that Shari's research, in the non-residential new construction (NRNC) category, concluded that GBI ignored the non-environmental issues within the criteria assessed (Shari, 2013). Jenken and Pederson-Zari (2009) stated that although aiming for neutral or reduced environmental impacts are indeed worthwhile targets; it should not compromise the flexibility to develop 'sustainability' rather than 'green' frameworks (cited in Blaviesciunaite, 2012).

Built environment, therefore, must go beyond the technicality of green framework. Hence, it is equally necessary to observe the built environment as an integral part of natural, cultural, social and economic systems rather than isolated identities (Blaviesciunaite, 2012). Clearly for most of the GBAT, two significant aspects of a holistic sustainability identified to be in need of further attention other than economic were the Social and Cultural (Poston et al, 2010; Blaviesciunaite, 2012; Shari, 2013; Darus, et

al., 2009), Malaysia included. The consideration of socio-cultural aspects within the GBAT particularly in Malaysia definitely requires certain innovation in order to be more holistic.

4.5. The philosophical basis and the holistic framework of SAM

A number of the philosophical basis, novel articulations, concepts and approach of sustainability were adopted. However, it is generally accepted that the TBL of sustainability, social, economic and environmental are the required factors in order to achieve sustainability. Essentially this research proposal explores the sustainability in the context of design. In relating to designs, Poston et al. (2010) expanded the three images of sustainability outline by Williamson et al. (2003) that is parallel to Triple Bottom Line. These being the ‘Natural’, ‘Cultural’ and ‘Technical’ images, as shown in Figure 2.

Image	Dominant Concerns	Dominant horizon	Symbolism/aesthetics	Approach
Natural	Environmental place, ecosystems, health, balance.	Local	‘Touching the earth lightly’ with forms echoing nature	Study local natural system; emphasize sensitivity and humility in relation to nature
Cultural	Cultural place, people, genius loci, difference, cultural sustainability	Local	Highly contextual with forms, materials and construction methods echoing the local vernacular	Study local culture and building, emphasize local involvement and local expertise
Technical	Technologies, global environmental impacts, cost-benefits analysis, risk management	Global	Leading edge contemporary international systems	Study science, economics and technology; emphasize transnational expertise

Fig.2. The three images of architectural sustainability outlined by Wilkinson et al. (2003)

(Source: adapted from Poston et al., 2010)

Clearly the aspect of Social in Figure 2 for design is very much cultural. Obviously among the dominant concerns within cultural dimension are the genius loci and cultural sustainability. The approach requires a study of the local culture and building and emphasizes the local involvement and expertise. Note in Figure 2, in terms of symbolism and aesthetics, it is highly contextual with the local architecture. In addition to the above, Figure 2 also assist in understanding the ‘technical’ domain of TBL, consequently, the non- technical aspect referred to in other papers.

Another philosophical basis that similarly highlighted the importance of the local culture and genius loci in implementing a holistic approach to architecture is the “Glocal Approach” (GA) by the Architects Institute of Japan (AIJ) and the Institute of Building Environment and Energy Conservation (IBEC). The GA emphasizes integrating “glocal” (global and local) paradigm in their holistic approach to architecture for a sustainable future. The essentiality of integrating the locality in terms of genius loci, “Feng-shui – Fudo”, redefining local culture’s underlying basic values with local relevance identity is their path towards architecture of the future that is sustainable (AIJ & IBEC, 2005).

Similar to the Japanese, the Malay communities in Malaysia also have their own ‘genius loci’, “Feng-shui – Fudo”, basic values and local identity, although similar but different in approach, values and practice. Adopting the view of GA and the concept of sustainability holistically, the Malay communities may create their own approach based on their socio-cultural values. Through this then, may create a path for other indigenous communities in Malaysia to follow suit such as the Iban, Kadazan, Bajau Laut, Malay Peninsula’s Malay communities, and Malaysia’s other cultural communities (Chinese, Indians and

hybrid culture such as Baba-Nyonya). An interesting and unique facts highlighted by Waterson (2009) regarding the Malay communities in Malaysia, is that “The South-East Asia’s community indigenous architectures, far ranging outside the normal confines of Western architectural history, although have large Muslims populations, their architectures are not Islamic in origin”. The statement portrayed the need for cultural innovation in their home environment.

The holistic framework developed by Poston et al. for SAM is one of the most comprehensive because it was based on studying fourteen different countries’ assessment systems for green buildings. Refer to Table 1 for the list of countries studied. This framework as articulated in Figure 3 is the most suitable holistic SAM framework for this research. It was derived based on Figure 2, accounting the requirements for future longevity through exploring the key factors of social, economic and environmental.



Fig.3. Seventeen criteria for holistic SAM framework

(Source: Poston et al., 2010)

4.6. Importance of socio-cultural aspect as part of the sustainable assessment system (SAS)

The importance of integrating the socio-cultural aspects as part of SAS is not a new proposal. Jenkin and Pederson-Zari (2009 cited in Blaviesciunaite, 2012) had already highlighted the importance in changing attitudes towards sustainable built environment and move beyond the environmental impact. The ultimate challenge would be to move through many different approaches in creating mutual beneficial integration of human and natural systems that support their co-evolution (Mang and Reed, 2012 cited in Blaviesciunaite, 2012). Shari (2008) recommended the integration of green (eco-systemic well-being) and brown (concerns the human well-being) agendas, with having positive benefits to the living world (Jenkin and Pederson-Zari, 2009 cited in Blaviesciunaite, 2012). In designing the interior environment, Sully (2012) expressed the need now for human to replenish their souls with an additive approach to cultural wellbeing (Sully, 2012), especially for homes. In China, a country with a vast cultural diversity, green architecture designs were commented to often appeared, to be reflecting on the phenomenon of technology and ignore culture (Gu, 2012). Gu’s study of the traditional Nanning houses to create cultural fusion in the green building design proves the importance of cultural wellbeing in

sustainability assessment. Similar community with complex cultural background and significantly different customs and value systems such as the Malay community, therefore, should heed these recommendations and move towards the same path in shaping a sustainable future. Saruwono et al. (2011) found that homeowners in Shah Alam, Malaysia, altered the external aesthetic with some regards to the local architecture, with the intention to create a more desirable living environment. The underlying point of **this** finding is the importance of the psychological and spiritual aspects influence to human health, the intangible aspect of human home environment.

Hacking and Guthrie (2008) found that environmental takes on a meaning beyond the biophysical aspect in developing countries, where the relationship between the biophysical and social is potentially stronger. In developing countries, the people and their social groups (such as villages and clans) are a component part of their environment (Hacking & Guthrie, 2008), the socio-cultural values, consequently the integrated approach that considered the socio-cultural values, particularly, in Malaysia is more suitable. Supporting Hacking and Guthrie's findings is Lim's comparison between the houses he termed as 'westernised conventional modern houses' and the Malay houses highlighted almost contrasting philosophy in the aspect of environment, culture, view of values, housing concept and functional focus (Lim, 1987). Both findings strengthen the point that socio-cultural viewpoint of sustainability may differ from the conventional methods. Moreover, in 'home' environment, the immediate environment, the dweller's emotional response plays a distinct and contextual role (Sazally et al., 2009), fundamentally socio-cultural in origin. Taking this into the Malay community's cultural context's sustainable home environment, what and how would they differ? Interesting highlights among the oldest characteristics within the Malay social systems are the shared social responsibility within the communities, priorities given to their women, matrilineal lineage and election of their leaders based on the community's majority decision (Idrus, 1996).

4.7. Historical settings: Contextual

Malaysia is a Malay country, stemmed from the dynamic maritime civilization of the ancient Malay kingdoms (Ishak, 2009; Masri, et al., 2012; Masri, 2013; Ishak, 2012; Ishak, 2013; Hitam, 2012; Kato, 1997) within the Nusantara Civilization of the Malay Archipelago and now a Malay country with multicultural population (Ishak, 2013). For the timeline of these kingdoms, refer to Masri (2012; 2013). The dynamism of this archipelagic culture differentiate the Nusantara Civilization from other ancient civilizations, however, this dynamism is not an easy aspect to grasp by people of other civilizations. Nusantara Civilization dynamism can be divided into two groups, first is the Material Dynamism which consists of life creations and experiences (the tangible culture associated with the way of life). The second is Civilizational Dynamism, which consist of their accumulated views of life and values (the intangible culture). Both group of dynamism existed symbiotically, Symbiotic Dynamism (Ishak, 2013). The most important part regarding the Nusantara archipelagic culture is that the people within the Malay Archipelago, recognised their common culture and civilization, and they travels freely among the islands and may settle anywhere within the archipelago. This understood concept among the people of Nusantara existed through the indigenous democracy which is founded on the basis of community interest, the Nusantara way (Ishak, 2013). Their traditional way has always been community based, not individual. Even representation too is a community based. The Malays in Malaysia is communities rooted from this civilizational through symbiotic dynamism, observed their environment, including built environment as not only an integral part of natural, cultural, social and economic systems but also the universe.

4.8. Malaysian scenario

Malaysia, being a Malay country with multicultural population, along with many other developing countries, is confronted with the danger of potential inadequacy in addressing their complex concept of sustainability especially when the ‘importation’ of inappropriate cross-cultural as Shari had cautioned may be detrimental. Similar risk had been identified by Lim’s studies of Malay houses, in 1997 when sustainability then was not yet common in Malaysia, property development were creating a social settings and living environments which are alienating the local culture. More importantly, participation of the communities was recommended in shaping their future home environments. This is because Lim’s studies revealed that certain elements in design are culturally and ethnically specific to the Malays whereas other elements relating to the principles of climatic design, building systems, spatial design, environmental design, community development and design flexibility can be adapted and applied to urban area or other ethnic situations (Lim, 1987).

Therefore, it is anticipated that the Malay communities may have certain specific values preferred in their home environment. Their participation would produce a more innovative and flexible methods or systems to shaping the Malaysian sustainable future. Hence, it is imperative to explore the socio-cultural realm to be alongside with the environmental dimension of Malaysia’s sustainable building for future SD. In fact, Darus et al. (2009) considered the non-technical aspects of the GBAT such as the social and cultural aspects to be crucial in developing SAM in Malaysia. Such innovation will be required even more so now with green townships adopted in Malaysia’s property development guidelines covering not only material, but also the design and environment (Wyn, 2010). Especially so, when the Minister of Urban Wellbeing, Housing and Local Government announced that it would also be mandatory for new semi-detached homes, bungalows and government buildings to have green features under the new approved by-laws in 2011 (Ng, 2011).

5. Findings: Hypotheses and Conceptual framework

Based on the literatures reviewed and questions arises, the paper proposes several hypotheses. Firstly, the study proposes to use a holistic universal method to assess sustainability within the community’s cultural context. Secondly, the assessment criteria for sustainability from the socio-cultural viewpoint would differ from the conventional tools. Thirdly, the study proposes that the community would prefer to shape their future environment with specific preferred values in their home environment.

The conceptual framework derived from the literatures reviewed is as in Figure 4. It will be refined and expanded to produce the Theoretical Framework enabling the variables identified and categorized.

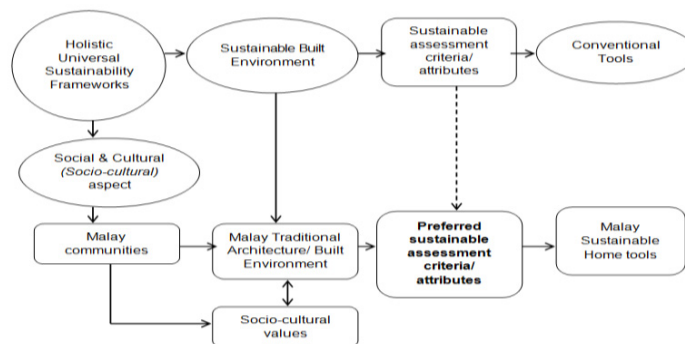


Fig.4. The conceptual framework diagram

The philosophical basis based on Poston et al. would have additional components for the purpose of this research as drawn in Figure 5.

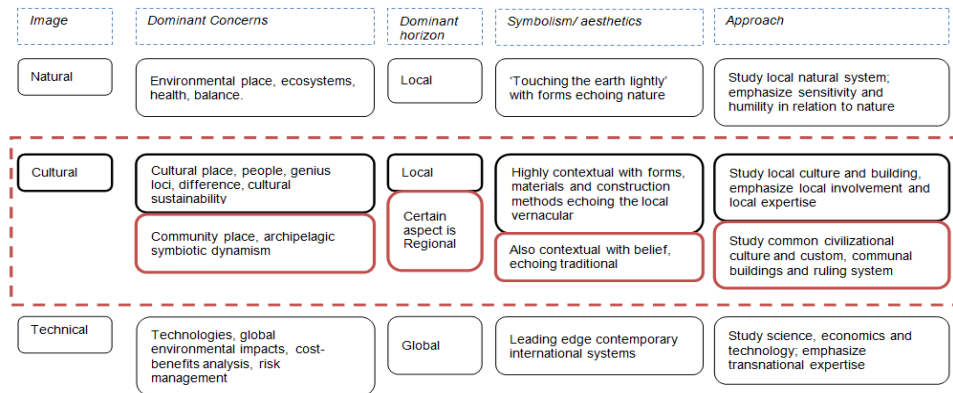


Fig.5. The three images of architectural sustainability adapted for this research

(Source: adapted from Poston et al., 2010)

6. Concluding remarks

The literature review has identified the inadequacy of most GBAT in addressing the non-environmental issues of sustainability within the assessment criteria for a holistic approach. The literature showed a gap for the socio-cultural aspects of SD in Malaysia. The socio-cultural aspect requires innovation towards developing the Holistic Sustainable Assessment System framework. The proposed hypotheses in the findings will require studies in order to define 'home environment' according to the Malay socio-cultural viewpoint. Communities' participation is concluded to be essential for this innovation in the aspect of socio-cultural values and viewpoint in the home environment.

The result of this research will not only serve as the basis for a socio-cultural integrated assessment tool but also as an educational mechanism. The outcome of this research is expected to improve future home environment for the Malay community. It is envisaged that the proposed frameworks would create change in attitudes towards the importance of this intangible aspect of human well-being in Malaysia.

Acknowledgements

The authors also would like to thank Tan Sri Dato' Mohd Yusof Hitam and En. Mohd Arof Ishak from *Lembaga Peradaban Melayu* (ADAB) for their kind assistances towards contributing information on the historical and contextual aspect of the research proposal.

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